Concept for Novel Accelerometer Based Upon Analysis of Observed Behavior of Three-Body Systems at the Nano- Scale

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Introduction

Given a newly-proposed physical model promulgated by this author for three-body gravitational systems, it is possible to construct a novel type of accelerometer based upon the positional dynamics of a three-atom system isolated from all external influences except for gravity and, naturally, the inertia of the atoms in the system.

Abstract

In the absence of an accurate physical model which takes into account the effects of mutual gravitational attraction in three-body gravitational systems, it would be difficult to build, for example, an accelerometer based upon comparative analysis of three-body systems consisting of only three atoms influenced only by nano- scale gravity and inertia. However, a new model which accurately takes gravity's influence upon the quantum gravity of the neighboring objects and its tendency to cause the quantum gravitational particles to follow curved pathways would enable the construction of a novel type of accelerometer.

With a sufficiently accurate model of a three-body system at the nano- scale, it should be possible use the current state of the three-body system in order to deduce the recent history of acceleration or deceleration in any direction provided an accurate baseline.

Although extremely precise baseline measurements would be necessary which take into account not only the position and vector of all three atoms as well as the rotational direction and velocity of the individual atoms (as this is relevant to micro- and nano- scale gravity,) once the desired baseline state is brought about, the state of the three-body system could be used to determine position relative to the starting point.

Rather than taking frequent measurements which might corrupt the three-body system, an accelerometer based upon this principle should be used in a different manner.

Multiple (perhaps hundreds or even thousands) of three-body systems would be incorporated into each unit. Any interaction with the LASER-light used to assess the position of the three atoms would, naturally, corrupt the predicted behavior of the system in a manner which would make it useless for further positional estimates after the first observation.

Although the individual nodes would be one-time-use only, they would be capable of providing hyper-accurate positional information during times when access to a more conventional GPS signal is denied. This high-accuracy

system could also be used to correct for drift in other inertial navigation systems such as the one based upon monitoring for albedo changes in phase-borderline, thermally-controlled liquid crystals described on 2 April 2024. Thus, conventional GPS could be augmented by a medium-accuracy inertial navigation system such as the reflection-analysis system described in 2 April 2024 and that system could, as needs be, be reset with periodic checks with the more accurate nano-gravity-based three-body analysis.

Conclusion

A variety of overlapping navigation systems based upon disparate principles with different advantages and disadvantages would provide an overall strategic benefit, particularly whereas these novel systems would be immune to disruption efforts. If made to be sufficiently accurate, a three-body system might provide accurate positional data for many years much as an atomic clock will keep accurate track of time without needing to be re-calibrated. Unlike with an atomic clock, this system becomes corrupted with each observation of the system, meaning that nodes must be replaced like flashbulbs and are one-time-use only. Given their scale, many thousands of nodes can be incorporated into a single navigational unit, reducing the frequency with which the node arrays would need to be replaced.